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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/491,098	01/25/2000	Gregory Paul Myers	30874.80USU1/SEA9029	8093
36733	7590	12/13/2004	EXAMINER	
SEAGATE TECHNOLOGY LLC INTELLECTUAL PROPERTY DEPT./ MAIL STOP NRW-097 7801 COMPUTER AVENUE SOUTH BLOOMINGTON, MN 55435			LETSCHER, GEORGE J	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/491,098

Applicant(s)

MYERS ET AL.

Examiner

George J. Letscher

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/28/00</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Drawings

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in Figure 1 and pages 4-5 of the specification in view of Fries et al.

The aforementioned claims recite the following features, inter alia, disclosed in Applicant's Prior Art in Figures 1-2 and pages 4-5 of the specification: A flex on suspension circuit (10) comprising a tail with a first end (away from leads 22 in Figure 1) and a second end (36); a shunt bar (48) located adjacent to the second end of the tail; a plurality of flying leads (22) projecting substantially perpendicular from a first edge of the second end of the tail wherein the plurality of flying leads are substantially parallel with one another and extend between the second end of the tail and the shunt bar (Figure 1). The flex on suspension circuit further comprises a foot (44) at the second end of the center tail route wherein the foot is located on a second edge of the second end of the tail. There is a plurality of head leads (towards gimbal region) wherein a continuous electrical path is formed between the head leads and the flying leads and there is a gimbal region (24) as well as a load beam area (26) coupled to the first end (vicinity of 28 in Figure 1) of the tail. A loopback (46) as well as a flapper on a third edge (side of 36) of the second end of the tail wherein the third edge is located opposite the first edge is provided in Figure 1. Applicant's Prior Art further comprises a shark fin (40) wherein the shark fin is located on a third edge of the second end of the tail wherein the third edge is located opposite the first edge; see Figures 1-2 of Applicant's Prior Art and pages 4-5 in the specification.

Regarding claims 1, 14 and 16, Applicant's Prior Art does not show a dam (claim 1) or a dam means for (claim 14) intersecting the flying leads

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wherein the dam extends from a first flying lead to a last flying lead and is substantially parallel with the first edge of the second end of the tail and restricts wicking (claim 15) or flow (claim 16) of solder beyond a region relative to the solder pads.

Fries et al (US 5,270,673) show a printed circuit board assembly having a flying lead arrangement where there is a dam (64 or 120) means intersecting (to cut across, i.e., on) flying leads (110-112) wherein the dam extends from a first flying lead to a last flying lead and is substantially parallel with the first edge of the second end of the tail. This dam prevents the conductive attachment, i.e., solder, material from bridging the gap between the pads; see column 4, lines 10-20 of Fries et al.

Regarding claims 9-10 and 17-18, Applicant's Prior Art do not show the dam fabricated from a polyimide material (claims 9 and 17) or from a covercoat material (claims 10 and 18).

Fries et al disclose a dielectric covercoat material (64, 120) for the dam as it covers part of the solder pad/conductive areas, thereby rendering it a coating covering the pad/conductive members.

Official Notice is taken of the fact that polyimide materials were a notoriously old and well known utilized material with a dielectric characteristic for flexible printed circuit boards, flexible suspensions, etc. for load beam configurations in disk drives.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have furnished the flex on suspension assembly of Applicant's Prior Art in Figures 1-2 and pages 4-5 of the specification with a dam or a dam means for intersecting the flying leads wherein the dam extends from a first flying lead to a last flying lead and is substantially parallel with the first edge of the second end of the tail where the dam restricts wicking or flow of solder beyond a region relative to the solder pads as taught in Fries et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to have furnished the flex on suspension assembly of Applicant's Prior Art in Figures 1-2 and pages 4-5 of the specification with a dam or a dam means for intersecting the flying leads wherein the dam extends from a first flying lead to a last flying lead and is substantially parallel with the first edge of the second end of the tail where the dam restricts wicking or flow of solder beyond a region relative to the solder pads as taught in Fries et al since one of ordinary skill in the art, knowing the characteristics a solder dam had for preventing solder flows, would have readily incorporated the dam into the flex on suspension of Applicant's Prior Art to have prevented the solder attachment material from bridging the gap (via a flow, wicking, etc.) between the (solder) pads; see column 4, lines 10-20 of Fries et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the flex on suspension of Applicant's Prior Art modified with the dielectric covercoat material dam of Fries et al

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having the dam comprise polyimide. The rationale is as follows: one of ordinary skill in the art would have been motivated to have provided the flex on suspension of Applicant's Prior Art modified with the dielectric material dam of Fries et al having the dam a material polyimide or covercoat since it was well known to one of ordinary skill in the art to have utilized any number of dielectrics (including polyimide) and covercoat(s) for various printed circuit suspension applications in order to have prevented electrostatic discharge (ESD) difficulties and it would have been within one of ordinary skill's level to have incorporated a dielectric polyimide as well as an overcoat for the dam.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Letscher whose telephone number is (703) 305-7912.

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5. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4750.

George Letscher
December 12, 2004

A handwritten signature in black ink, appearing to read "George Letscher", with a stylized, cursive script.

George Letscher
Primary Examiner
AU 2653